

Exhibit 1

LAW OFFICES OF
SCHMIDT, ISGRIGG, ANDERSON & MILLER, PLLC

ROBERT G. ISGRIGG, JR.
RUSSELL C. ANDERSON
PAUL S. MILLER

September 12, 2017

Byron Smith, Claim Representative
Chubb Group of Insurance Companies
P.O. Box 42065
Phoenix, Arizona 85080

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED
AND FIRST CLASS MAIL

Re: Claim #: 040515008195
Insured: Versatube Corporation
4755 Rochester Rd., Troy, Michigan 48085
Our File: Versatube Corp

Dear Mr. Smith:

~~Versatube Corporation is formally submitting its first Supplemental Claim under Claim #~~
040515008195. This supplemental claim is with respect to the large structural beam that was structurally damaged during the covered event, but ultimately not replaced.

In the February 2015 Fire at the Versatube manufacturing facility, a 20' section of beam that supports two separate sections of roof joists was structurally damaged, such that the beam sagged under its own weight and deformed.

The initial report prepared by Sheppard Structural Consulting ("Sheppard") on February 13, 2015, which was produced to the Troy Building Department Inspector, indicated that the beam should be removed and replaced. See **February 13th Report** attached as **Exhibit 1**. The February 13th Report does not indicate the amount of deflection present in the beam at that time. Also notable in the February 13th Report is Sheppard's finding that there was no structural damage to the joists.

Despite the initial report by Sheppard recommending the beam be removed and replaced, an alternative plan was subsequently formulated and implemented. See **April 15th Report** attached as **Exhibit 2**. In the April 15th Report, Sheppard now indicated that all existing steel, including the structurally damaged and deflected beam would remain in place. The revised Sheppard plan assumed the existence of a concrete trench footing below the poured concrete floor, which was never confirmed prior to the repair columns being installed. Furthermore, the revised Sheppard plan failed to cure the deflection in the beam itself, and thus the deflection in the roof above. The anchor bolts specified by the revised Sheppard plan did not comply with Michigan Building Code requirements under Section 2308.6. Finally, the revised Sheppard plan failed to specify the structural welding connections, including welder certifications, material certifications, Welding Process Certification or supportive Procedure Qualification Record, fillet size, etc.

Byron Smith, Claim Representative
September 12, 2017
Page 2

Pursuant to the reports of James Partridge, PE, and Stephen M. Rudner, PE, it has been determined that the implementation of the April 15th Revised Sheppard plan was not in accordance with applicable code as it has resulted in a structure that was less conforming after the repair work was conducted than the building was prior to repair (Michigan Rehabilitation Code for Existing Buildings (MRHC), 2009, Section 502.2). Further, the adoption of the revised Sheppard plan has resulted in an ongoing dangerous condition of the premises and has resulted in ongoing damage to the facility. See **Partridge Report** attached as **Exhibit 3**, referencing the **Rudner Report**, attached as **Exhibit C** to the Partridge Report.

More specifically, it has been determined that the fire-damaged cross beam has now deflected downwards 3.5" over its 20' span. Furthermore, as a result of this downward deflection in the crossbeam, the northern steel channel roof joists supported by the beam have also deflected downwards and in the process are now bowed and twisted. Additionally, an inspection of the eastern block wall has revealed that the steel structure of the high bay area has moved southward approximately 1/2".

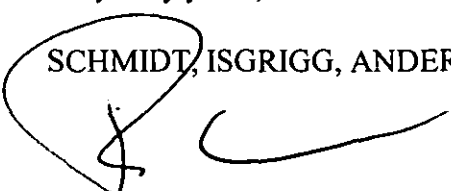
~~According to MRHC=2009, Section=506=1; "[r]egardless of the extent of structural or~~
nonstructural damage, dangerous condition shall be eliminated. Regardless of the scope of repair, new structural members and connections used for repair or rehabilitation shall comply with the detailing provisions of the International Building Code for new buildings or similar structure, purpose, and location."

Thus, Versatube Corporation disagrees with the implementation of the revised Sheppard plan, and believes that the initial Sheppard recommendation to remove and replace the damaged beam should and must be implemented pursuant to the Michigan Rehabilitation Code for Existing Buildings.

Please contact me to further discuss these matters in detail.

Very truly yours,

SCHMIDT, ISGRIGG, ANDERSON & MILLER


Paul S. Miller

PSM/js

Enclosure

cc: Gene Goodman
Jennifer Lemaire

SHEPPARD STRUCTURAL CONSULTING, P.C.

Isaac Sheppard, Jr., Ph.D., P.E.

1049 John R Road
Rochester Hills, MI 48307-3231
Phone: (248) 608-3445
Fax: (248) 608-3449

February 13, 2015

Mr. Jack Williams
Building Inspector/Plans Examiner
City of Troy
500 W. Big Beaver Rd.
Troy, MI 48084

Re: Versatube, 4755 Rochester Rd., Troy, MI
SSC Job No. 15-017

Dear Mr. Williams:

I inspected the fire damage to the roof framing and decking at the north side of this building, approximately 100 feet west or rearward from the back side of the office area, with you, Steve Sabo, John Rybski, Dave McBride and others on Tuesday, February 10, 2015. The overall building consists of a variety of different constructions where additions were added over a period of many years.

The main fire was at the huge electrical panels on the north wall of a high bay area which had 40-foot steel lattice-type, open-web joists with structural T's at the top and bottom chords and criss-crossed round diagonal webs on both sides, such that the entire joist had webs in compression and tension throughout the length of the steel joist. These steel joists were spaced 4 feet o.c. There did not appear to be any structural damage to these rather odd, lattice-type joists, though about 13'x40' of 2x6 T&G wood decking needs to be replaced over this high bay area.

The 2-story area north of the electrical panels had a mixture of 8" channels and W8x10 steel joists, all spaced approximately 4-feet o.c. These channels and beams had not been structurally damaged by the fire, but an area of about 13'x40' of T&G wood decking needs to be replaced over this area, very similar to the area over the adjacent high bay. The two roof skylights over this area may also need to be replaced or eliminated in any reconstruction effort.

EXHIBIT

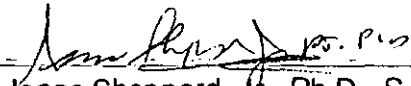
tabular

Mr. Jack Williams, Building Inspector/Plans Examiner
City of Troy
Re: Versatube, 4755 Rochester Rd., Troy, MI
February 13, 2015
Page 2

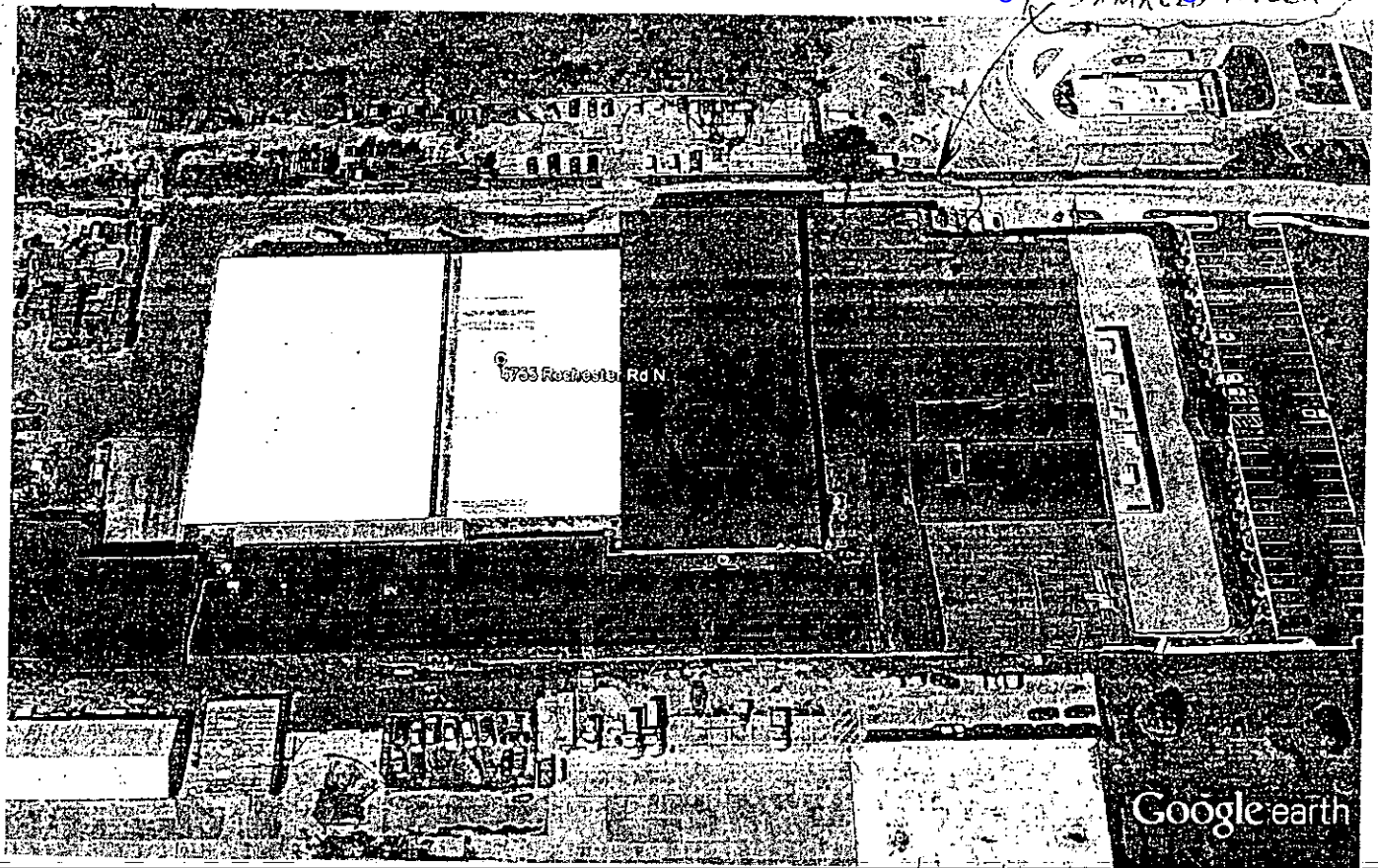
There is a steel beam along the north wall of the high bay which supports the W8x10 and 8" channels at the roof of the 2-story addition. A 20-foot length of this beam has a buckle in the bottom flange and deflection of the beam itself. That beam should be removed and replaced but with a larger beam.

Despite the need for a new, larger beam at the joint between the high bay and the 2-story section, there is no immediate safety issue. When the beam is replaced, I recommend that it be placed at a slightly higher level so the new roof decking from the 2-story portion will match up with the roof decking in the high bay portion and provide a small amount of pitch toward the north to provide better water run-off from this area.

Sincerely,


Isaac Sheppard, Jr., Ph.D., S.E.
Professional Engineer

Cc: Steve Sabo, Belfor



Google earth

feet
meters



SHEPPARD STRUCTURAL CONSULTING, P.C.
1049 John R Rd., Rochester Hills, MI 48307-3231

Phone: 248/608-3445

Fax: 248/608-3449

Isaac Sheppard, Jr., Ph.D., P.E.

Google Earth Photo with Fire Damaged Location
Versatube, 4755 Rochester Road, Troy, MI
for Belfor

SSC Job No. 15-017

Date 02/16/15

Sheet 1 of 2



SHEPPARD STRUCTURAL CONSULTING, P.C.

Isaac Sheppard, Jr., Ph.D., P.E.

1049 John R Road
Rochester Hills, MI 48307-3231
Phone: (248) 608-3445
Fax: (248) 608-3449

April 15, 2015

Mr. Josh Yaroch
Belfor Property Restoration
28400 Schoolcraft Rd.
Livonia, MI 48150

Re: Versatube, 4755 Rochester Road, Troy, MI
SSC Job No. 15-017

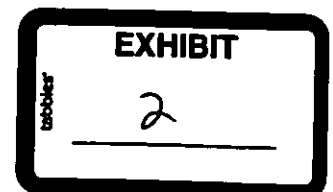
Dear Mr. Yaroch:

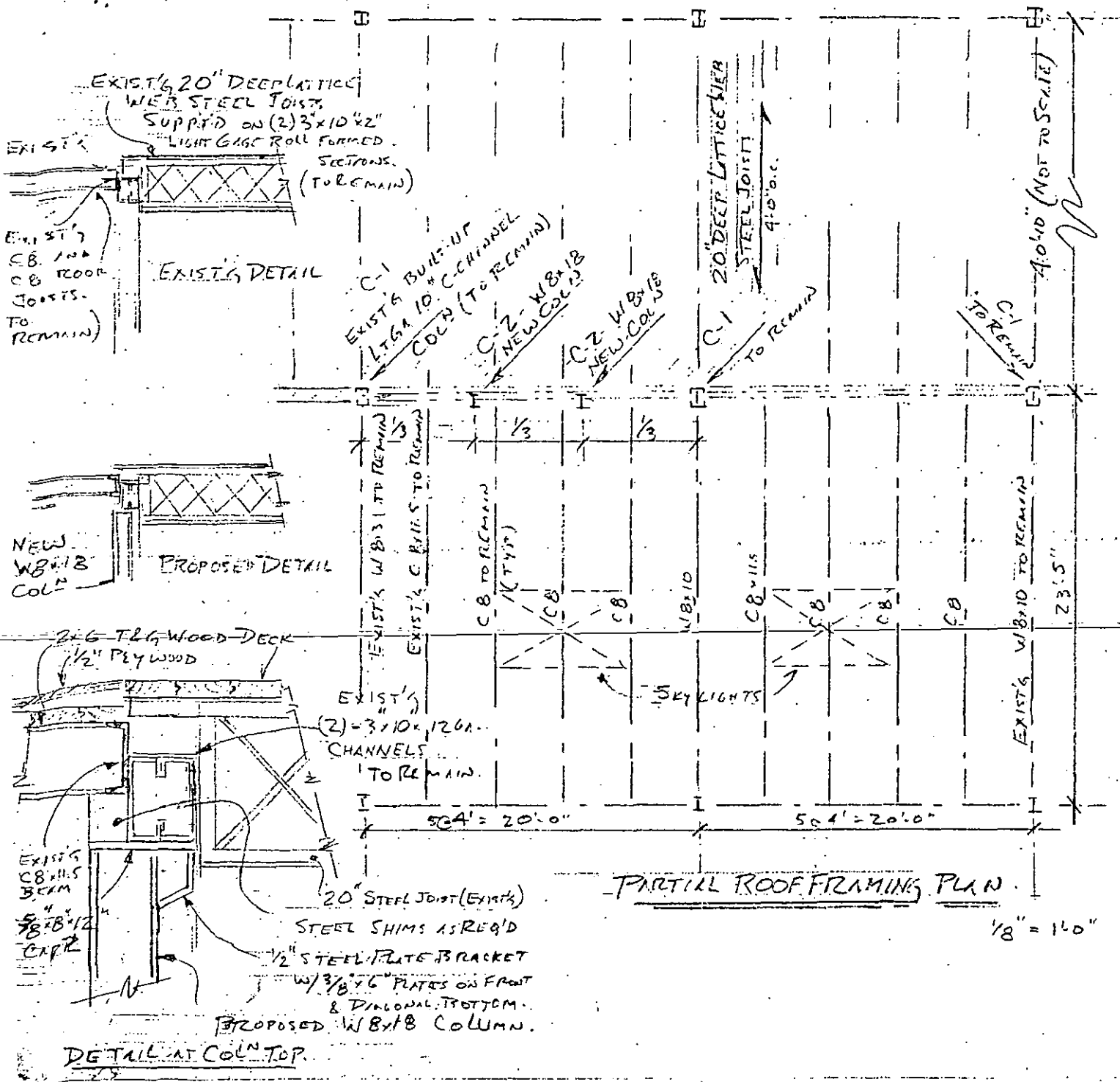
I re-inspected the steel framing and separation wall of fire-damaged area between the 23'-5"x40'-0" 2-story addition at the north side of the main building with you, Steve Sabo, and the steel fabricator on Monday, April 6, 2015. I made a third inspection after starting some repair/reinforcement details in order to confirm that those details would actually reflect the existing framing.

I concluded that it would be possible to leave all the existing steel, including the beam which is slightly buckled in place by providing additional columns. I have shown two additional W8x18 columns at approximately 1/3 points of the 20-foot span on the enclosed 8½x11 drawings dated 04/15/15. Four signed and sealed copies of those drawings are enclosed.

Sincerely,

Isaac Sheppard, Jr., Ph.D., S.E.
Professional Engineer





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1049 John R Rd., Rochester Hills, MI 48307-3231

Phone: 248/608-3445 Fax: 248/608-3449

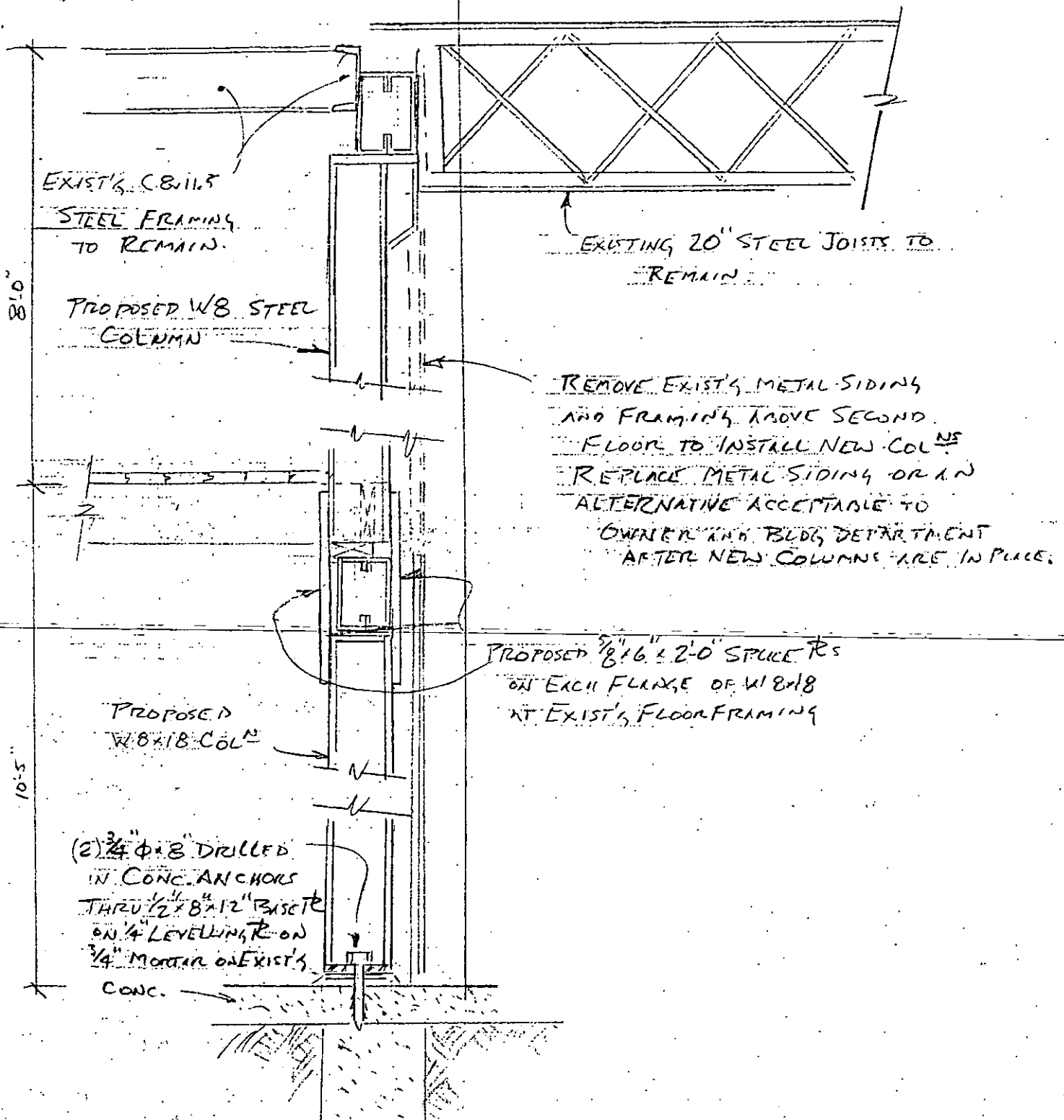
Isaac Sheppard, Jr., Ph.D., P.E.

Partial Roof Framing Plan & Column Top Details
Versatube, 4755 Rochester Rd., Troy, MI
for **Belfor**

SSC Job No. 15-017

Date 04/15/15

Sheet 1 of 2



SHEPPARD STRUCTURAL CONSULTING, P.C.
1049 John R Rd., Rochester Hills, MI 48307-3231

Phone: 248/608-3445

Fax: 248/608-3449

Isaac Sheppard, Jr., Ph.D., P.E.

Side Elevation of W8x18 Column

Versatube, 4755 Rochester Rd., Troy, MI
for Belfor

SSC Job No. 15-017

Date 04/15/15

Sheet 2 of 2

SHEPPARD STRUCTURAL CONSULTING, P.C.

Isaac Sheppard, Jr., Ph.D., P.E.

1049 John R Rd.

Rochester Hills, MI 48307-3231

Phone: 248/608-3445 Fax: 248/608-3449

FAX to 734-261-7765

To: BELFOR

Date: 4-14-15

Attn: STEVE S., RANDY C., or JOSH Y.

From: IKS S.

Re: VERSATUBE - ROCKHISTON RD., TROY.

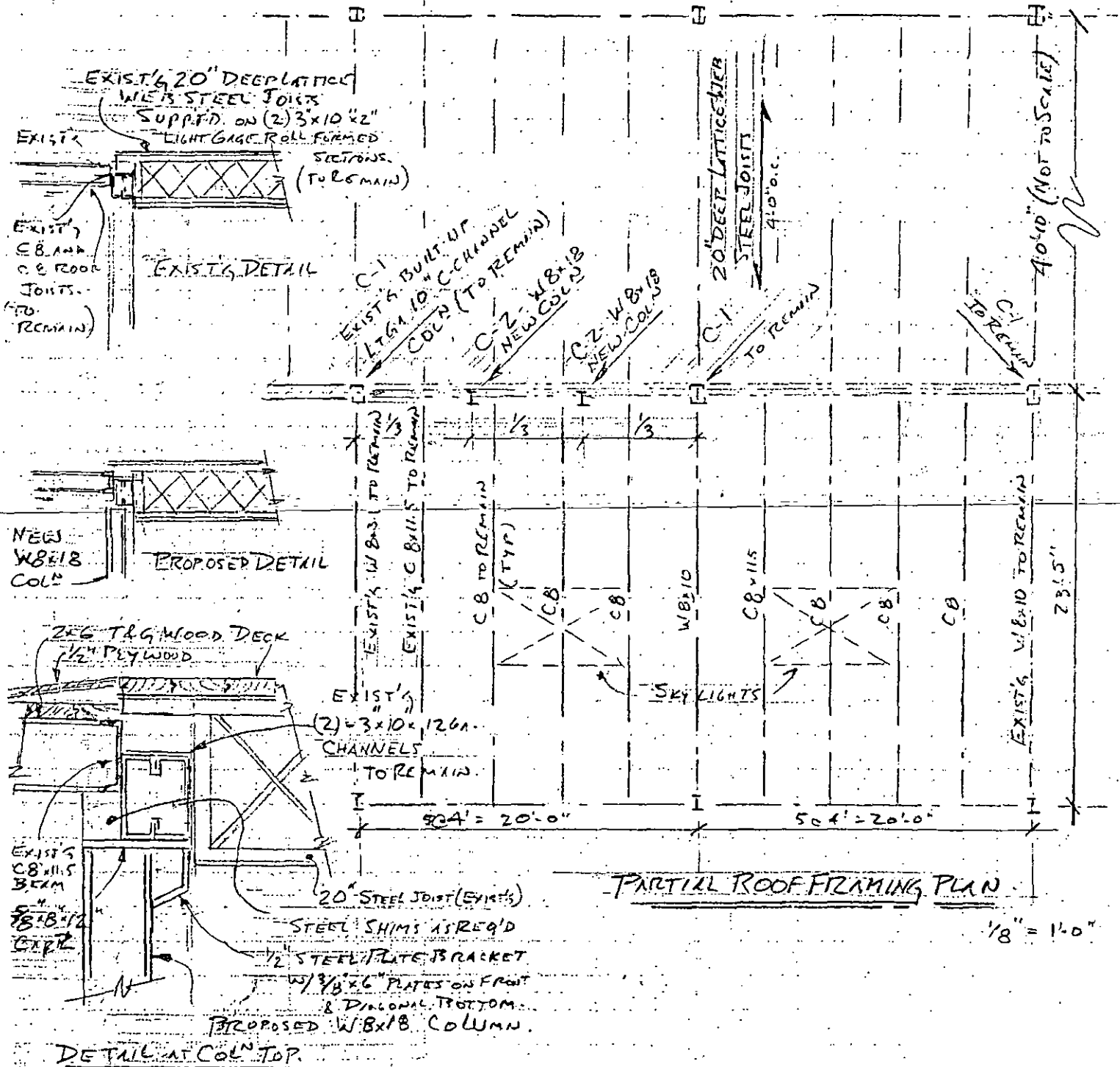
ENCL. has my 2 p. 8 1/2 x 11 DWG. WE HAVE NOT HAD

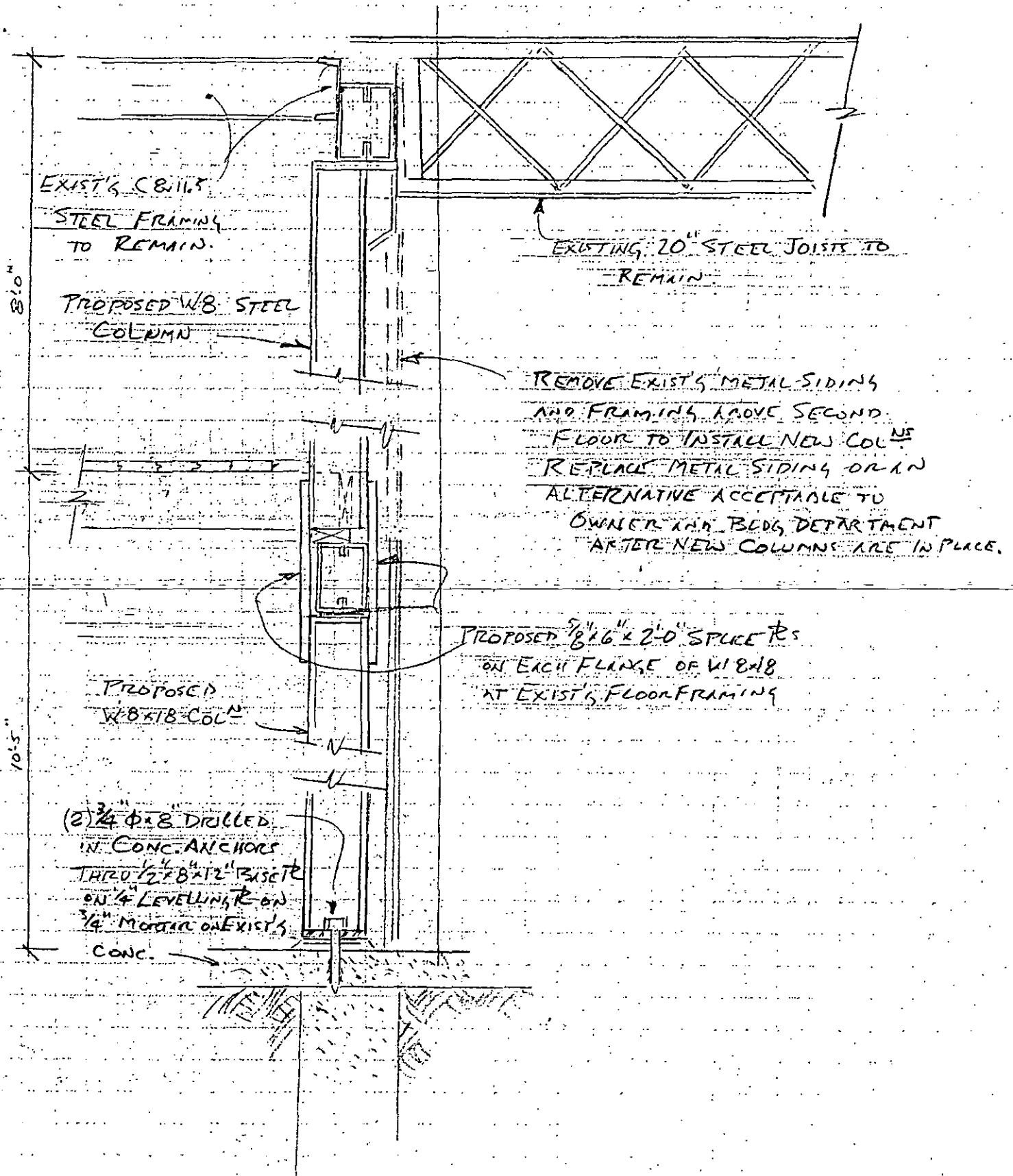
TIME TO MAKE TITLE BLOCKS, BUT WILL MAIL COPIES AS SOON

AS DONNA'S ABLE TO MAKE TITLE BLOCKS.

No. of sheets including this sheet: 3

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10-5 F.P. 108
UNUSING
Sun-Floor

W8x10

2 1/4 F.P.

5 1/2

3 1/2

4

9

4

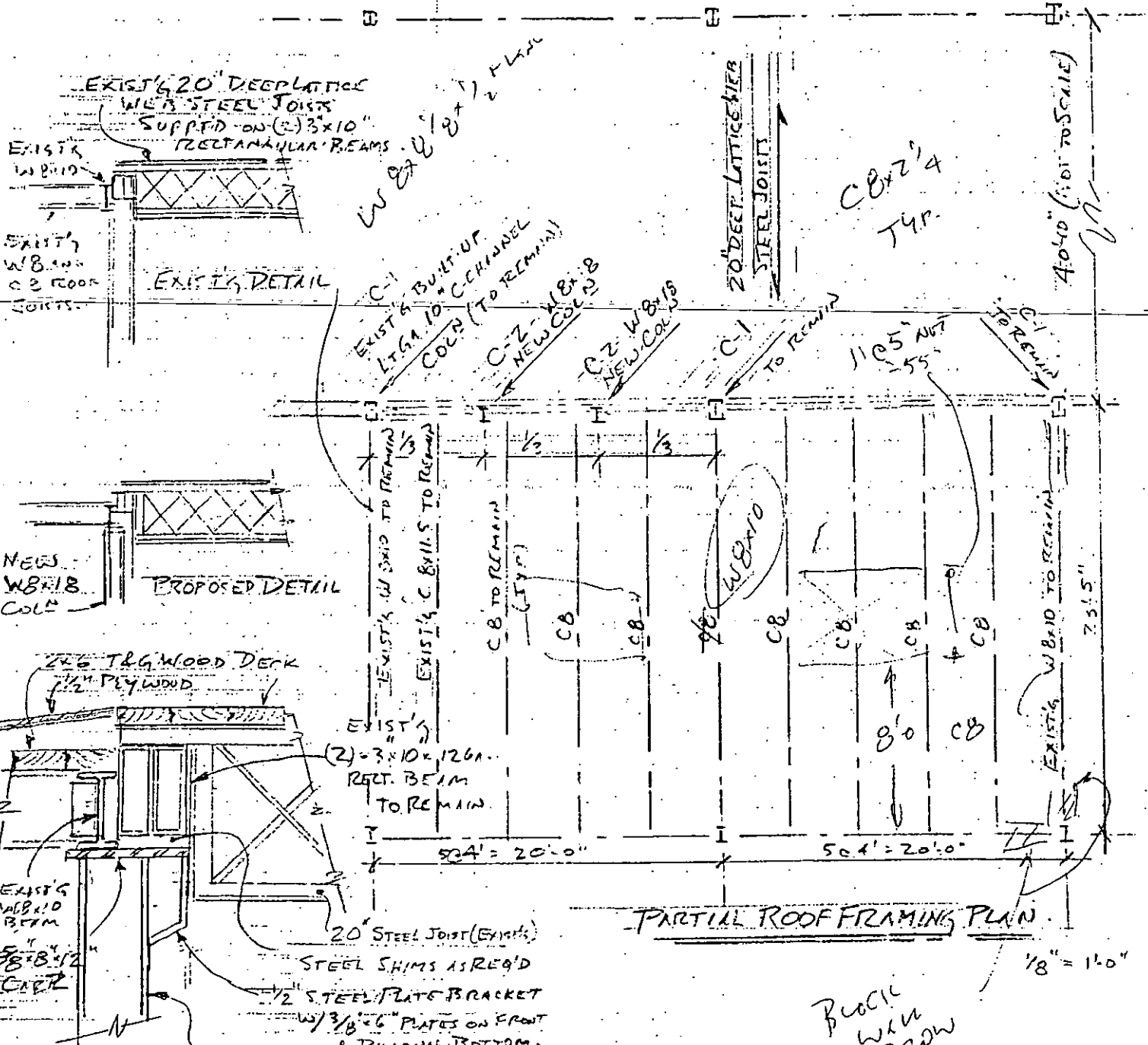
10

3 1/2

20

8

20 1/2

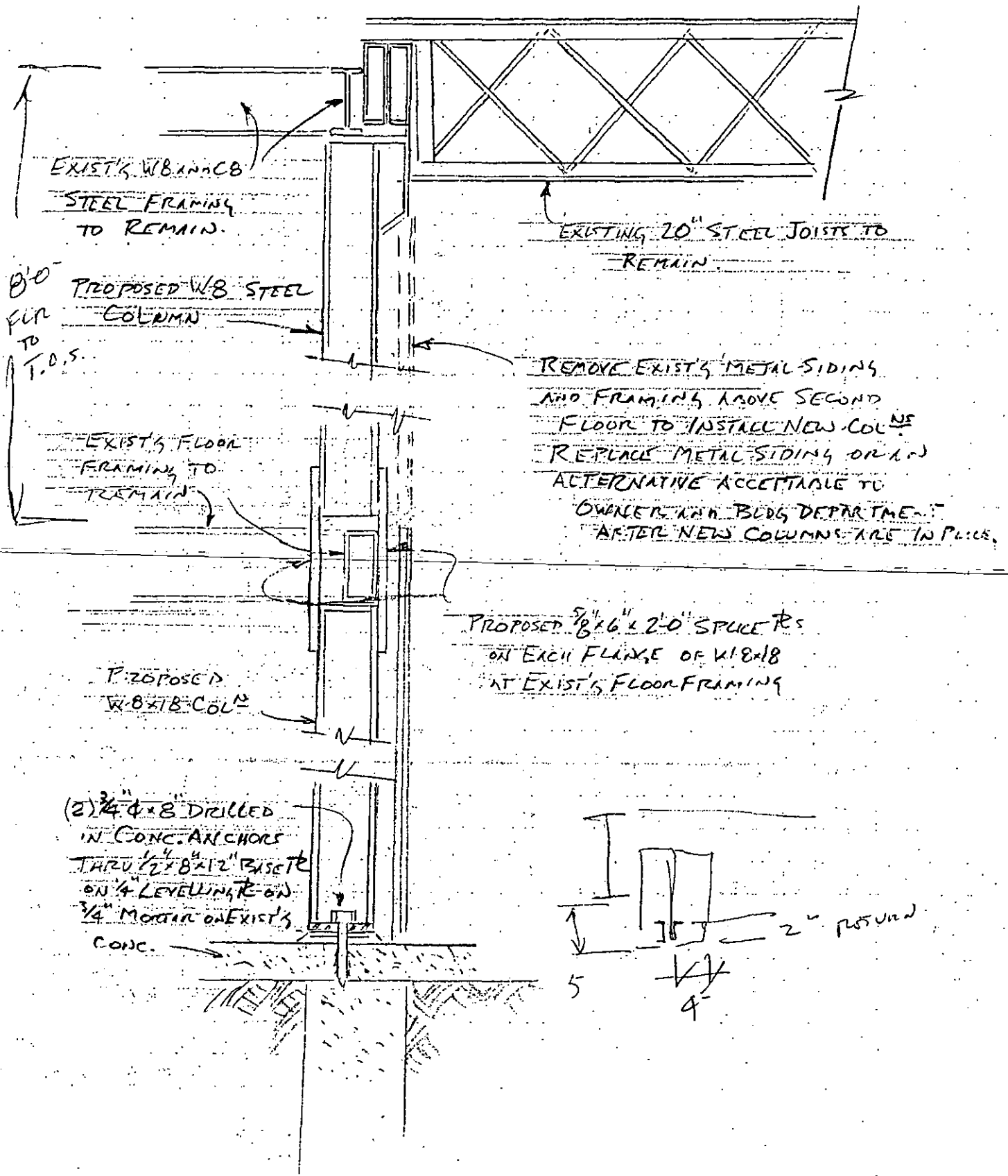


PARTIAL ROOF FRAMING PLAN

1/8" = 1'-0"

Back
with
row

DETAIL AT COLN TOP





A. James Partridge, PE
925 S. Adams Road
Birmingham, MI 48009-7039
V 248.645.1465
F 248.440.7281
jim@jpconsulting-llc.com
www.jpconsulting-llc.com

Report via Email

August 11, 2017

Mr. Paul Miller, Esq.
Schmidt, Isgrigg, Anderson & Miller, PLLC
2745 Pontiac Lake Road
Waterford, MI 48328

Subject: Versatube Corp. Sheppard Report, Beam Repairs, and Codes

Paul:

~~This report supersedes all previous reports. This report will address my opinions on: a) Sheppard Report, b) Applicable Codes, c) Beam Repair, and d) Structural Welding.~~

I. Sheppard Report

A. Sheppard Structural Consulting (SSC) issued 2 reports.

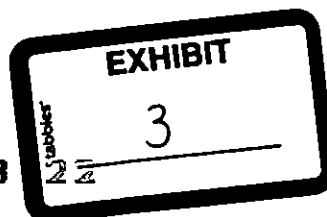
1. The 1st report, to City of Troy Building Inspector Jack William, dated 2/13/15 recommends replacement of the damaged roof beam. Refer to Appendix A.
2. The 2nd report, to Josh Yaroch of Belfor Property Restoration, dated 4/15/15 provides an alternate approach that does not include the removal of the damaged roof beam. Refer to Appendix B.

The 2/13/15 report does not reference any attachments by JPC received 3 sketches. Sketch 1, sheet 2 of 2 dated to 16/15 is signed by Mr. Sheppard. The 2 other sketches are not dated or referenced to SSC as the preceding sketch was labeled. The sketches show the alternate approach that is included in the 4/15/15 report.

4/15/15 report does not reference any attachments by JPC received 6 sketches labeled SK-3 (JPC) & SK-4 (JPC).

1. SK-1 sketch 1 of 2 dated 4/15/15 is identical to one of the undated sketches received with the report dated 2/16/15

Page 1 of 5





2. SK-2 sketch 2 of 2 dated 4/15/15 is identical to one of the undated sketches received with the report dated to 16/15
3. Sketches 3 and 4 are identical to those received with the 2/16/15 report
4. Sketches 5 and 6 are identical to 3 and 4 except for what appears to be work product.

The 4/15/15 report does not indicate that it supersedes the 2/15/15 report. Our evaluation is based on both reports

3. (2/13/15) Page 1, paragraph 3, 2nd sentence states in part; "*These channels and beams had not been structurally damaged by the fire.....*", however, I would say the twisted and bowed roof channels are in that configuration due to the fire.
4. (4/15/15) Sketches prepared do not accurately reflect the eccentricity of the offset beams. The actual eccentricity measured is more than indicated on the sketches.
5. (2/13/15) Four sketches, SK-3 (JPC) through SK-7 (JPC) are undated.
6. (2/13/15) Page 2, paragraph 1, 2nd and 3rd sentence states: "*The 2-foot length of this beam has a buckle in the bottom flange and deflection of the beam-itself-That-beam-should-be-removed-and-replaced-with-a-larger-beam.*"
I concur.
7. (4/15/15) The sketches issued indicate an alternate approach to beam replacement without stipulating details of the structural welding connections including but not limited to:
 - a. welder certification,
 - b. material certifications,
 - c. Welding Process Certification (WPC) or supportive Procedure Qualification Record (PQR),
 - d. structural welding requirements,
 - e. fillet size.
8. Column at the Southeast corner at the 2nd floor has moved south approximately 1/2 inch. This is not addressed in the report. There is no evidence the void was patched post-fire. Refer to Appendix A, page 16.
9. (2/13/15), Sketches indicates a trench footing below the concrete. There is no evidence such a footing exists.
10. The anchor bolts if specified to be 3/4" diameter x 8" long. This length is insufficient to comply with the Michigan Building Code (MBC) 2009, Section 2308.6, which stipulates an embedment "*..... of at least 7 inches.....*" Therefore, the concrete anchor must be more than 11 1/2 inches long. Refer to Appendix C.



- B. There is no evidence a geotechnical investigation was undertaken to determine soil strength, position, and adequacy of the load-bearing soils, compressibility, etc. as stipulated in the MBC, Sections 1801 and 1803.
- C. The Sheppard report does not comply with the Michigan Rehabilitation Code for Existing Buildings, (MRHC) 2009; section 502.2 states: "*Performance. The work shall not make the building less conforming than it was before the repair was undertaken.*"
- D. Refer to Robert Darvas Assocs. (RDA) report authored by Steve Rudner, PE. (Appendix C).
- E. The structural integrity of the column welds, the lack of specificity on the Sheppard sketches with respect to the welder certification, welding process, etc., whether or not a trench footing exists, and the soil pressure beneath the footing, if it exists are, in my opinion, sufficient unknowns to render the installation unsafe.

II. Repair

- A. The A&Z proposal dated April 17, 2015 more likely than not, is subcontractor of record for implementing the beam repair. Refer to Appendix D. As noted above in item A5, the ~~SSC report does not delineate materials, welding rods, fillet sizes, etc. and there is no~~ evidence that A&Z requested such information. Additionally, minimum welder certification requirements were not part of the alternate repair method proposed by SSC.
- B. In my opinion implemented repairs not comply with the following excerpt from the MRHC 2009, Section 506.1:

*"..... Regardless of the extent of structural or nonstructural damage, **dangerous condition** shall be eliminated. Regardless of the scope of **repair**, new structural members and connections used for repair or rehabilitation shall comply with the detailing provisions of the **International Building Code** for new buildings of similar structure, purpose and location"*

The implemented repair does not eliminate a dangerous condition; the SSC report does not comply with code with respect to specificity of structural welding, foundation will length, no evidence of a geotechnical investigation, and no evidence that a footing exists.

III. Beam Repair

- A. The implemented beam repair has numerous deficiencies:
 - 1. Welds are poor in selected locations, more likely than not, due to a difficult well-positioned, and poor clearance for the electrode.



2. Column base plates do not sit on a bed of mortar as detailed in the SSC report.
3. Visible gap below the column base plates.
4. Saw cuts on the side of the tubular beam at the new column locations.
5. Name, firm, and welder qualifications are unknown.
6. Material certifications are not known.
7. Many fillet welds are irregular, erratic, inconsistent, and/or incomplete.
8. Weld splatter and arc strikes are readily apparent.

B. Refer to Acuren Inspections report, authored by Rick Bradin (Appendix E)

C. The welder qualifications are unknown, the column welds are poor, the material used is unknown, etc. Consequently the installation should be considered dangerous. The reconstruction of the area should be in complete compliance with the RDA Report recommendations. Refer to Appendix C.

IV. Codes

A. The following codes apply to the repairs:

1. ~~Michigan Rehabilitation Code for Existing Buildings, 2009, Chapter 5~~
(Appendix F)
2. Michigan Building Code, 2009, Sections 1801.1, 1801.2, and 1803.1 through 1803.6. (Appendix G)
3. Michigan Building Code, 2009, Section 2308.6. (Appendix H)

V. Conclusion

Based on investigations/assessments by Robert Darvas and Associates, Acuren Inspections, James Partridge Consulting, LLC, and code requirements there is little doubt the repair is dangerous and the roof beam and ancillary items must be replaced/repaired to pre-loss conditions in complete compliance with the RDA report, Appendix C.

Information contained in this report is based on information available at the time that this report was prepared. James Partridge Consulting, LLC reserves the right to amend and/or modify this report if new and/or significant data becomes available that impacts the situation parameters of this investigation.

Our services were performed using the degree of skill normally exercised by practicing investigation individuals in this area and similar locales. No other warranty is either expressed or implied.



If you have any questions about the conclusions contained in this report, feel free to call.

Cordially,

James Partridge Consulting, LLC

A. James Partridge, PE

Attachments: Appendices A through H

AJP/cb

SHEPPARD STRUCTURAL CONSULTING, P.C.

Isaac Sheppard, Jr., Ph.D., P.E.

1049 John R Road
Rochester Hills, MI 48307-3231
Phone: (248) 608-3445
Fax: (248) 608-3449

February 13, 2015

Mr. Jack Williams
Building Inspector/Plans Examiner
City of Troy
500 W. Big Beaver Rd.
Troy, MI 48064

Re: Versatube, 4755 Rochester Rd., Troy, MI
SSC Job No. 15-017

Dear Mr. Williams:

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The main fire was at the huge electrical panels on the north wall of a high bay area which had 40-foot steel lattice-type, open-web joists with structural T's at the top and bottom chords and criss-crossed round diagonal webs on both sides, such that the entire joist had webs in compression and tension throughout the length of the steel joist. These steel joists were spaced 4 feet o.c. There did not appear to be any structural damage to these rather odd, lattice-type joists, though about 13'x40' of 2x6 T&G wood decking needs to be replaced over this high bay area.

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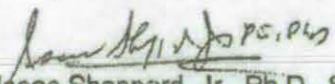
APPENDIX A 1/5

Mr. Jack Williams, Building Inspector/Plans Examiner
City of Troy
Re: Versatube, 4755 Rochester Rd., Troy, MI
February 13, 2015
Page 2

There is a steel beam along the north wall of the high bay which supports the W8x10 and 8" channels at the roof of the 2-story addition. A 20-foot length of this beam has a buckle in the bottom flange and deflection of the beam itself. That beam should be removed and replaced but with a larger beam.

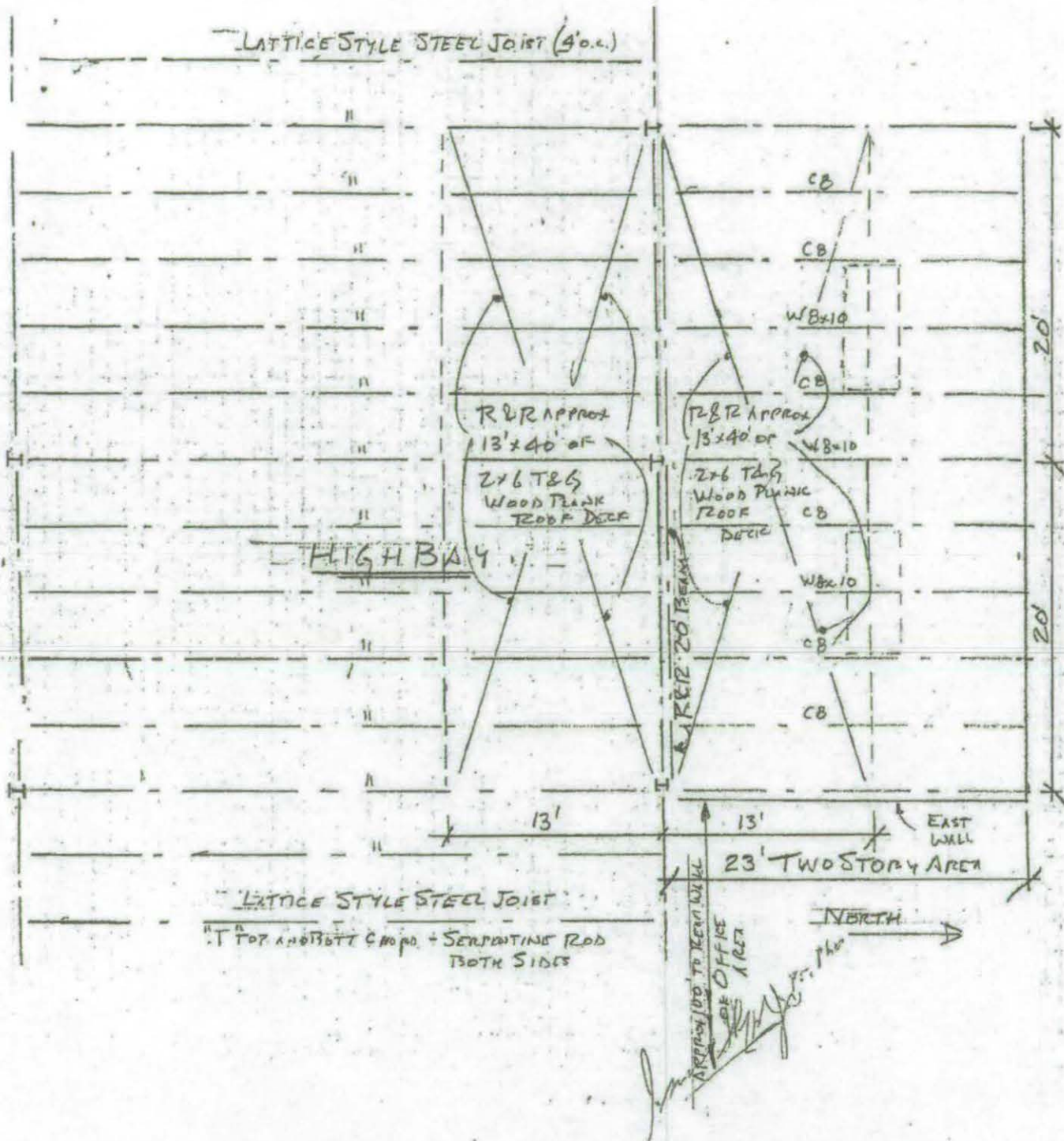
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Sincerely,


Isaac Sheppard, Jr., Ph.D., S.E.
Professional Engineer

Cc: Steve Gabo, Beifor

APPENDIX A 2/5



SHEPPARD STRUCTURAL CONSULTING, P.C.
1049 John R Rd., Rochester Hills, MI 48307-3231

Phone: 248/608-3445

Fax: 248/608-3449

Isaac Sheppard, Jr., Ph.D., P.E.

Partial Roof Framing Plan of Fire Damaged Area
Versatube, 4755 Rochester Road, Troy, MI
for Belfor

SSC Job No. 15-017

Date 02/16/15

Sheet 2 of 2

APPENDIX A 3/5

SHEPPARD STRUCTURAL CONSULTING, P.C.

Isaac Sheppard, Jr., Ph.D., P.E.

1049 John R Road
Rochester Hills, MI 48307-3231
Phone: (248) 608-3445
Fax: (248) 608-3449

April 15, 2015

Mr. Josh Yaroch
Belfor Property Restoration
28400 Schoolcraft Rd.
Livonia, MI 48150

Re: Versatube, 4755 Rochester Road, Troy, MI
SSC Job No. 15-017

Dear Mr. Yaroch:

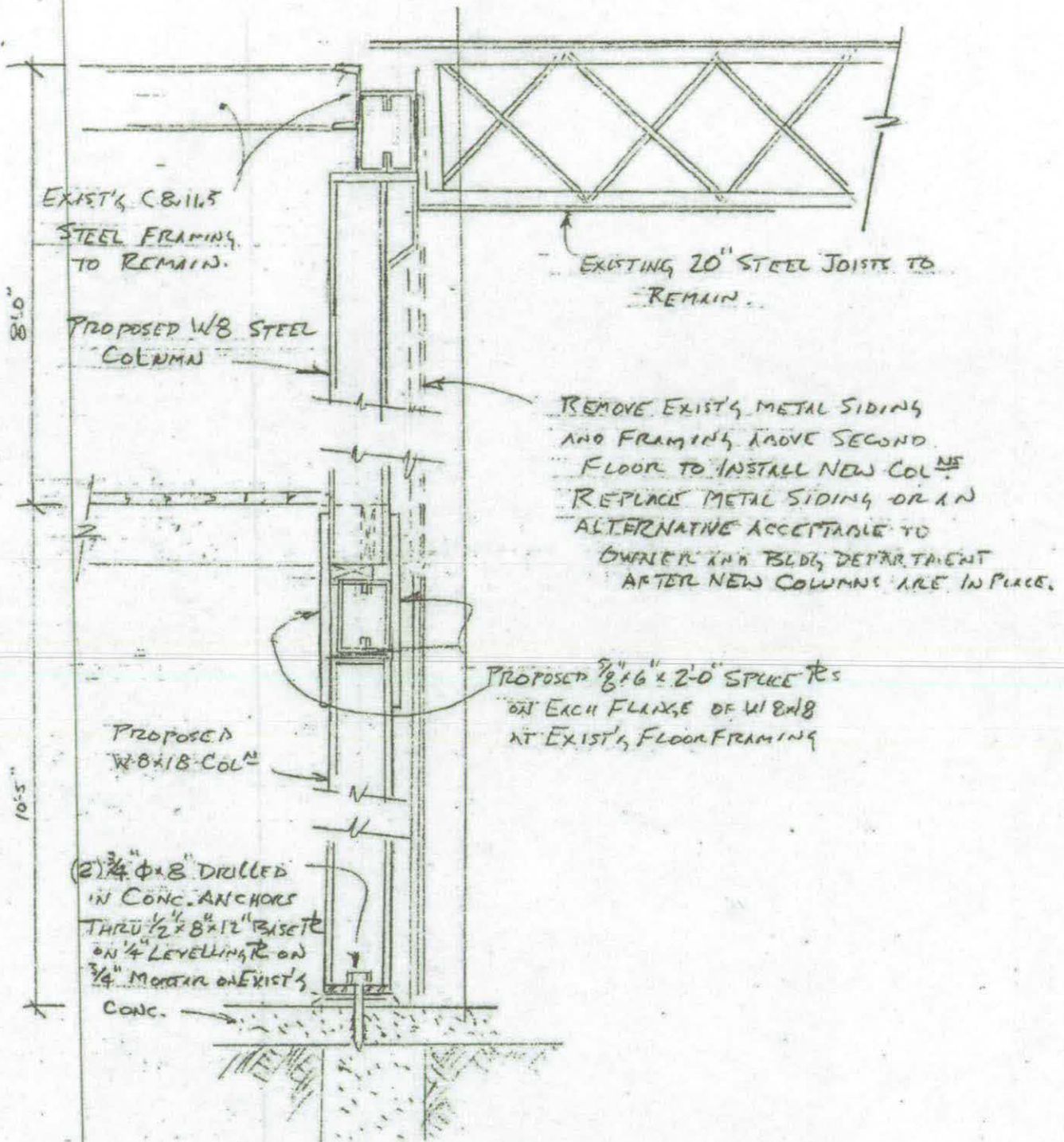
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Sincerely,

Isaac Sheppard, Jr., Ph.D., S.E.
Professional Engineer

APPENDIX B 1/7



<p>SHEPPARD STRUCTURAL CONSULTING, P.C. 1049 John R Rd., Rochester Hills, MI 48307-3231 Phone: 248/608-3445 Fax: 248/608-3449 Isaac Sheppard, Jr., Ph.D., P.E.</p>	<p>Side Elevation of W8x18 Column Versatube, 4755 Rochester Rd., Troy, MI for Belfor</p> <p>SSC Job No. 15-017</p> <p>Date 04/15/15</p> <p>Sheet 2 of 2</p>
--	--

SK-2(JPC)

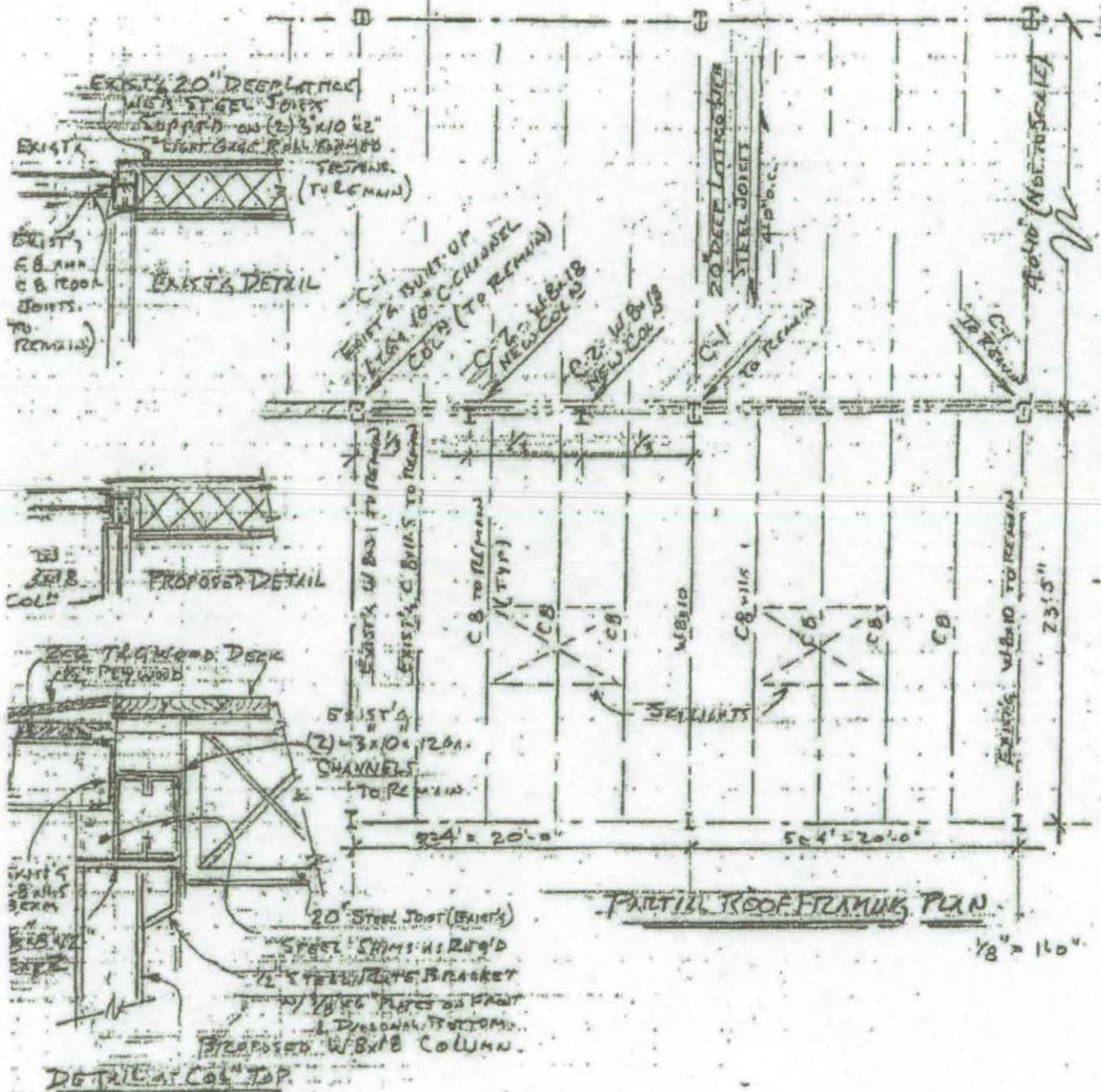
APPENDIX B 3/7

04/14/2015 14:43

2486883449

SHEPPARD STRUCT CONS

PAGE 02/03



SK-3 (JAC)

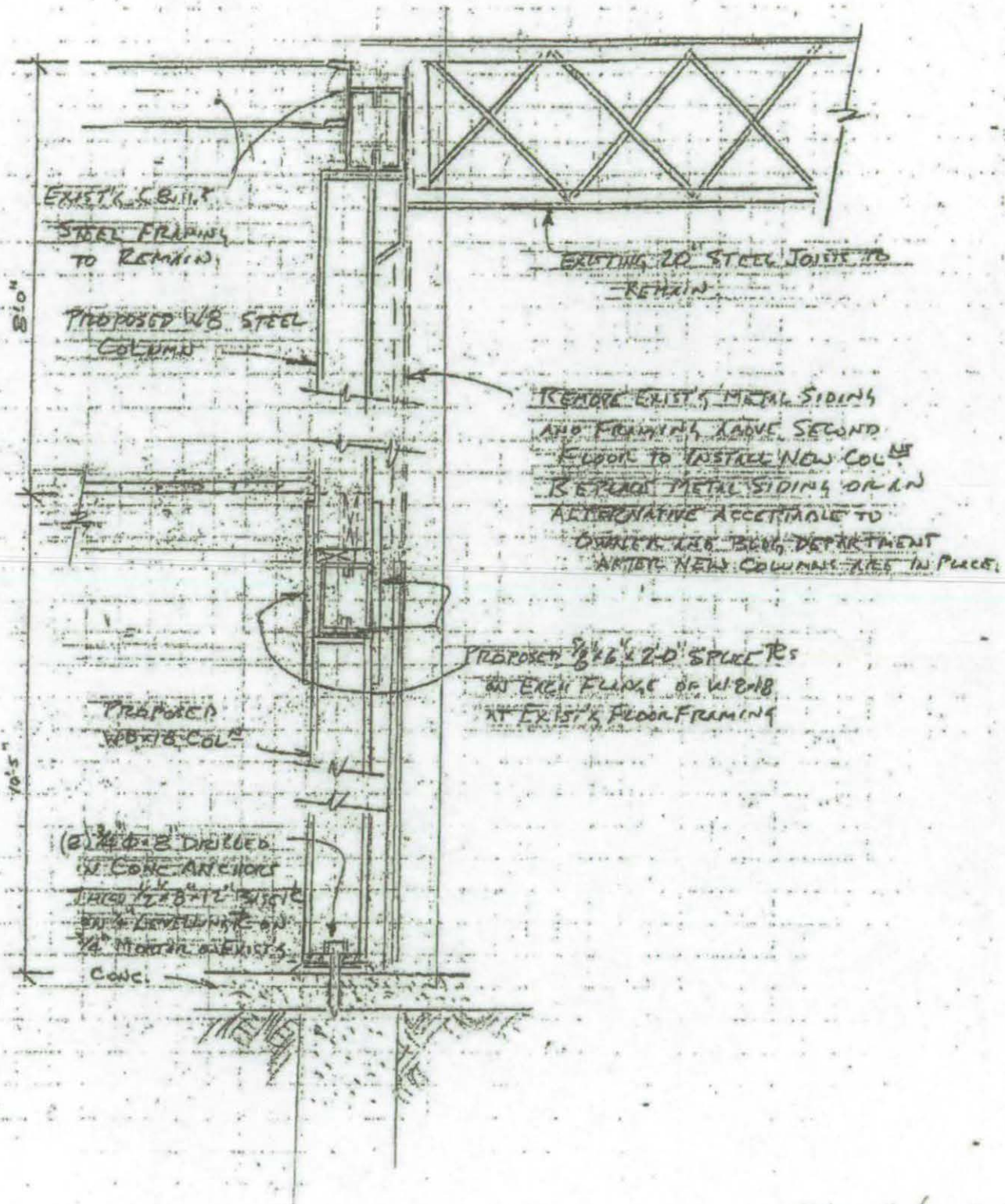
APPENDIX B 4/7

04/14/2015 14:43

2486883449

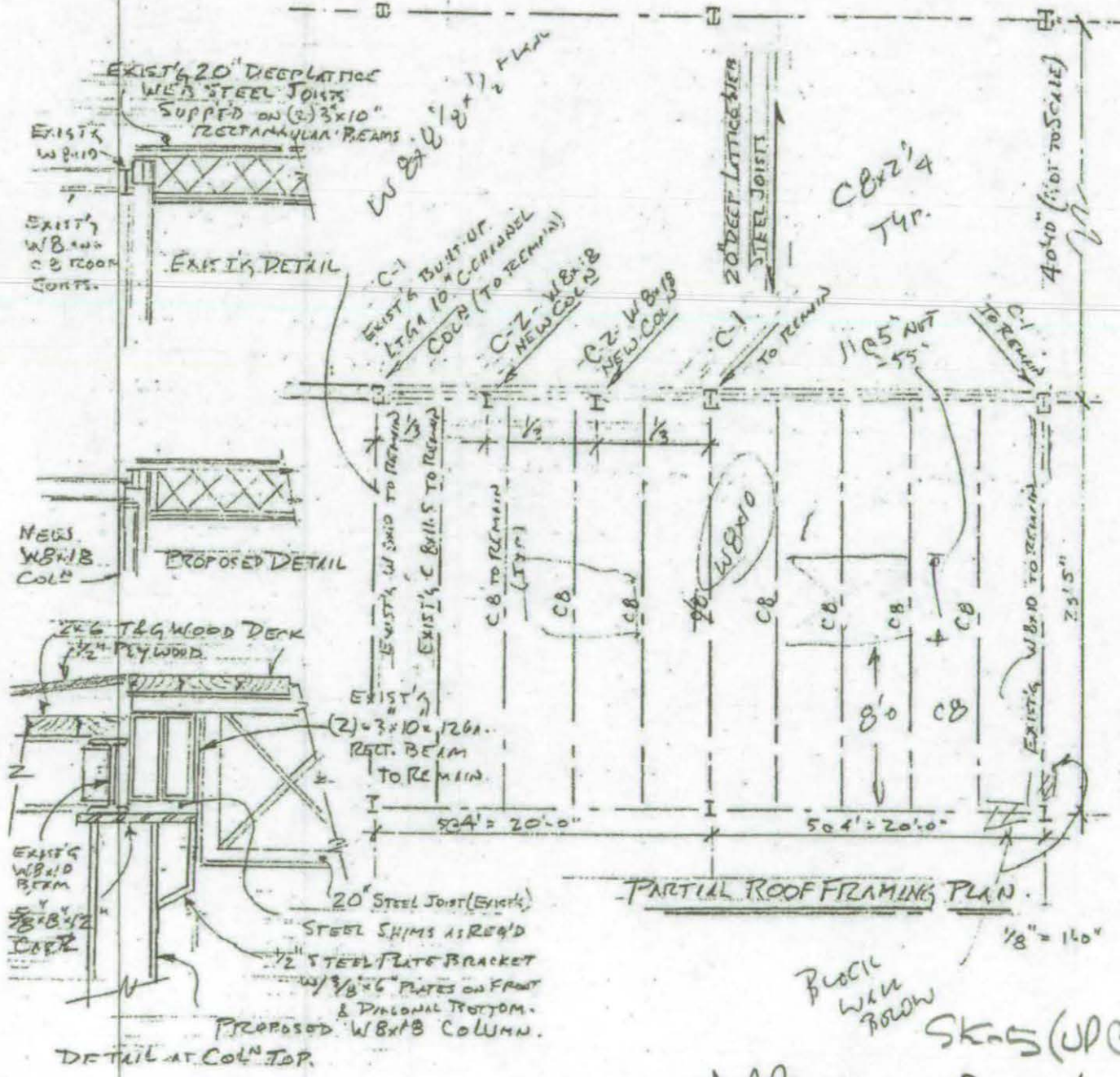
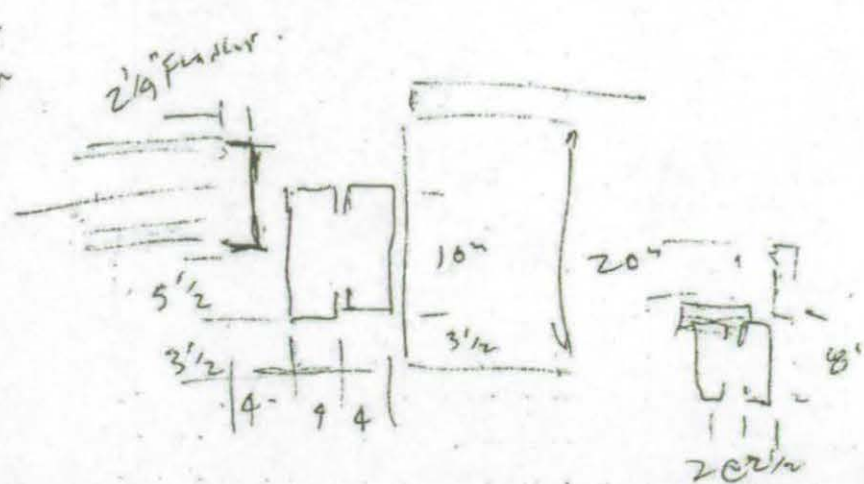
SHEPPARD STRUCT CONS

PAGE 03/03



SK-4 (JPC)

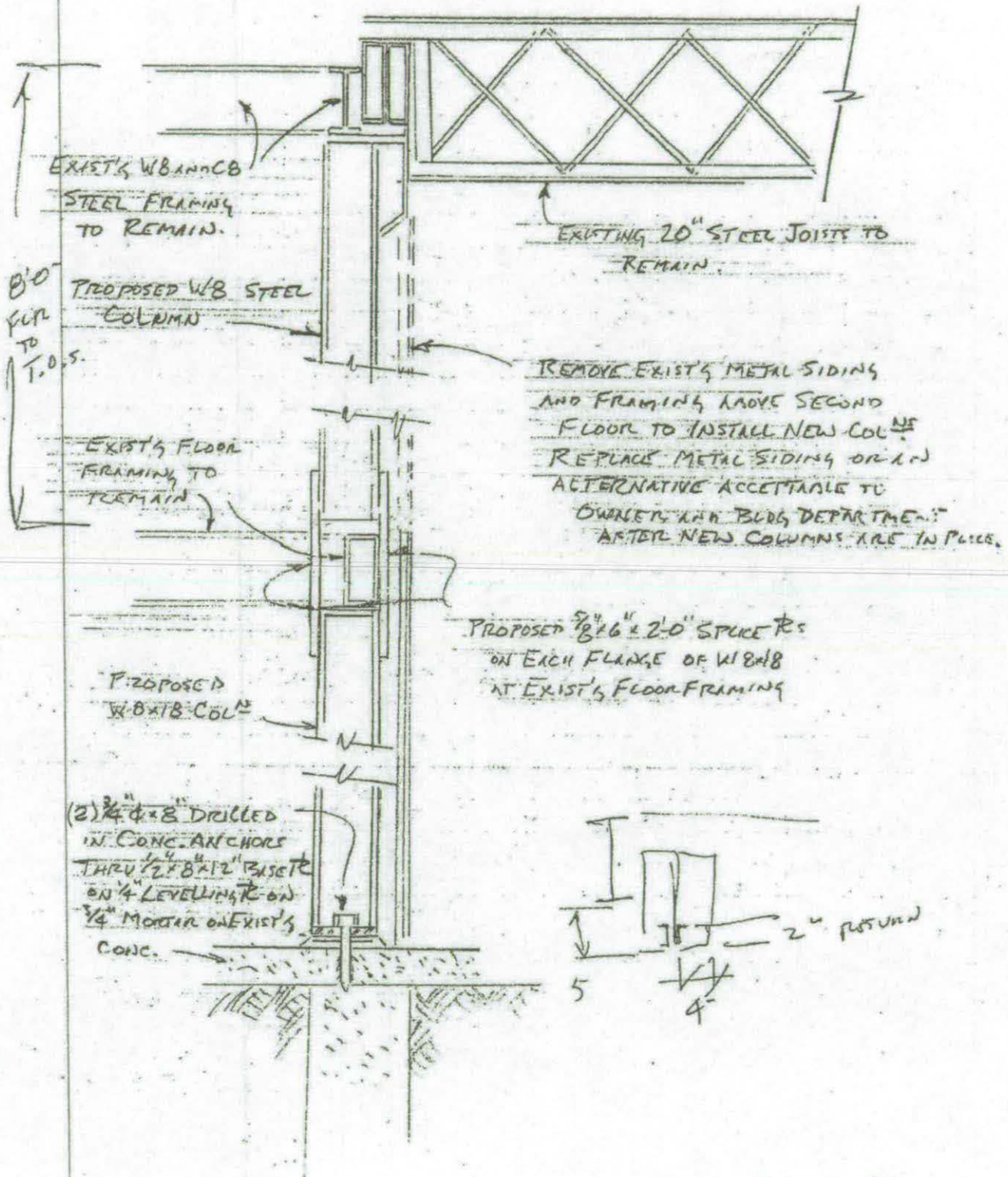
APPENDIX B 5/7



Back
with
Brown

SK-5 (UPC)

APPENDIX B 6/7



SK-6(JPC)

APPENDIX B 7/7

JUNE 5, 2017

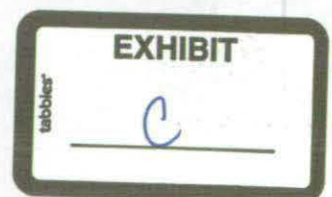
robert darvas associates
consulting structural engineers
440 south main street
ann arbor, mi 48104



VERSATUBE STAMPING PLANT
INSPECTION OF FIRE DAMAGE REPAIRS
4755 ROCHESTER ROAD, TROY MI

INSPECTION BY STEPHEN M. RUDNER, P.E.
ON JUNE 02, 2017

CLIENT
JAMES PARTRIDGE CONSULTING, LLC
MR. JAMES PARTRIDGE, PRINCIPAL
925 S. ADAMS ROAD
BIRMINGHAM, MI 48009-7039



Versatube Stamping Plant
Fire Damage Repair Inspection
by Stephen M. Rudner, P.E. on June 2, 2017

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STRUCTURAL INSPECTION WRITTEN REPORT

June 5, 2017

Mr. James Partridge
James Partridge Consulting, LLC
925 S. Adams Road
Birmingham, Michigan 48009-7039

Via Email: jpartridge@jpc-llc.com

**Re: Versatube Stamping Plant – Inspection of Repairs to Fire Damaged Structure
4755 Rochester Road Troy, MI**

Dear Mr. Partridge:

On June 2, 2017, at your request, I inspected a portion of the Versatube Stamping Plant structure that had been repaired after a fire. Also present during my inspection were yourself and Dave _____ of Versatube. My inspection consisted of visual observations that could be made without demolition of existing finishes. I used a tape measure and a carpenter's level to assist in my inspection. No material testing was undertaken as a part of my inspection effort. The purpose of my inspection was to observe the repair work that had been done to the fire damaged elements of the building structure. Following are my observations, conclusions, and recommendations:

OBSERVATIONS

A fire had taken place reportedly beginning in an electrical transformer located on a mezzanine on the south side of an interior wall of the plant. The mezzanine is no longer present. Elements of the building structure were damaged due to the fire as follows:

1. The roof beam above the wall where the fire began has sagged down approximately 3.5 inches in its 20'-0" span. This deflection was not removed prior to re-supporting the roof beam.
2. The steel channel roof joists spaced at 4'-0" c/c on the north side of the sagging beam have not only sloped down toward the sagged beam but two of them have twisted and bowed due to the sagging of the support beam.
3. Two new W8x18 steel columns were added at approximate third points of the 20'-0" span of the sagged roof beam. These columns appear to be located above a continuous trench type footing however the columns are offset from the roof beams, such that a cantilevered bracket was fabricated to support the roof beams. The two added columns straddle a former wall girt that currently acts as a beam to support the wood floor joists of the second floor north of the interior wall line where the fire was located. There were numerous field welds visible during my inspection. While some of the welds have a nice uniform appearance, many do not likely due to the difficult welding position and poor clearance for the electrode during welding. See attached photos. The welds of the added columns to their base plates and the anchorage of the column base plates to the top of the foundation could not be observed during my inspection due to the finish materials. It does not appear the base plates sit on a proper grout bed as there is a gap visible beneath the plates.
4. When standing on the second floor near the east end of the fire damaged area, the sealant between the concrete block east wall of the two-story wing shows about a ½" southward movement of the abutting steel structure of the high bay area. This gap does not appear to have been patched in the post fire repair work.

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5. Removal of the angle along the north side of the existing 2nd floor beam at the new column locations was not done carefully and the saw cut into the side of the tubular beam. See attached photos.
6. I reviewed a report prepared by Isaac Sheppard PE dated Feb 13, 2015 where-in he describes his assessment of the fire damage to the structure and provides some sketches showing the placement of the two added columns although the written report makes no mention of the columns but calls for replacement of the sagged steel beam. Also in the report Mr. Sheppard says there is no structural damage to the channels and beams supporting the roof on the north side of the wall however my observation is that at least two of them are significantly bowed and/or twisted. The eccentricity of the main roof beam along the wall line that are being supported by the brackets at the top of the added columns is not portrayed correctly in Mr. Sheppard's sketches and the actual eccentricity I measured is significantly more than Mr. Sheppard is showing in his sketches. See attached sketches.

CONCLUSION

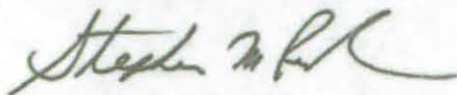
The repair work that was done was defective in that the sagged roof beam was left in place. Also, the welding of the spliced columns where they are interrupted by the tubular floor beam and the welding of the bracket at the top of the column is questionable as seen in my attached photos. The deformed twin tubular roof beam parallel with the wall line and twisted channel joists of the roof structure above the second-floor area should not have been re-used.

RECOMMENDATIONS

1. Shore up the roof joists on the south side of the wall where the fire occurred and shore up the second-floor joists and the roof joists on the north side of the wall. Use adjustable shoring towers such that the joists can be jacked back into the correct position once the roof beams on the wall line are removed.
2. Remove and replace the roof beams such that they span clear between the original columns. This beam is made up of two tubular beams plus a continuous channel welded along the north side of the north tube beam. Weld the steel joists of the south high bay to the new beam. Provide wood nailers for attaching wood roof decking as required. The replacement beams should be sized based on calculations prepared by a structural engineer.
3. Remove and replace the twisted channel roof joists on the north side of the wall where the fire occurred. The new timber roof decking may not be able to be saved here and may require replacement in order to replace these damaged channels.
4. Eliminate the two added columns and repair the locations along the existing second floor beam where the saw cut into the sides of the tube. The removed section of angle ledger should be spliced back in and the saw kerfs repaired and the wood nailer supporting the second-floor joists should be spliced back together as well.

Please call me if you have any questions regarding this report.

Robert Darvas Associates, P.C.



Stephen M. Rudner, P.E.

Enc.

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PHOTO REPORT



Photo #1 - Looking west on south side of wall. Area of fire was on mezzanine attached to the wall on the right of this photo.

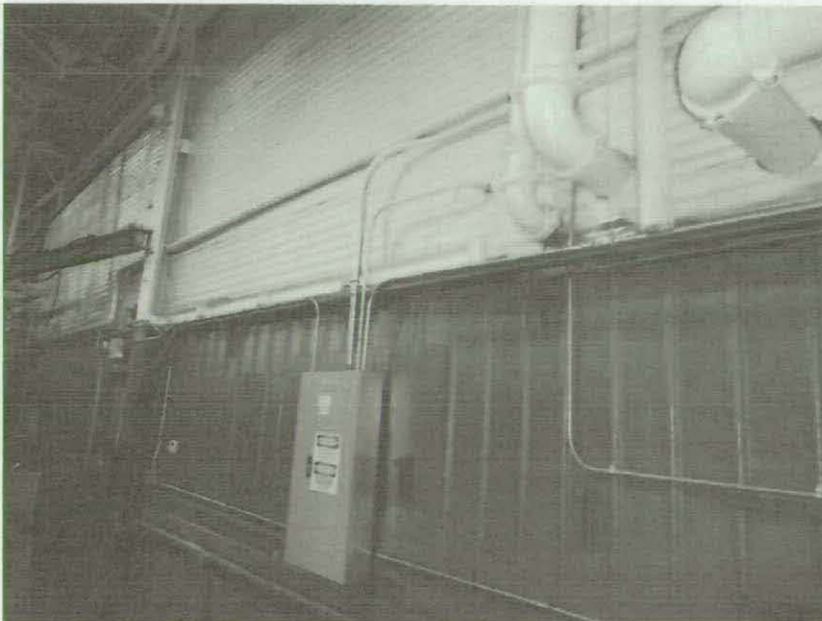


Photo #2 - Looking west on south side of wall. Area of fire was on mezzanine attached to the wall on the right of this photo.

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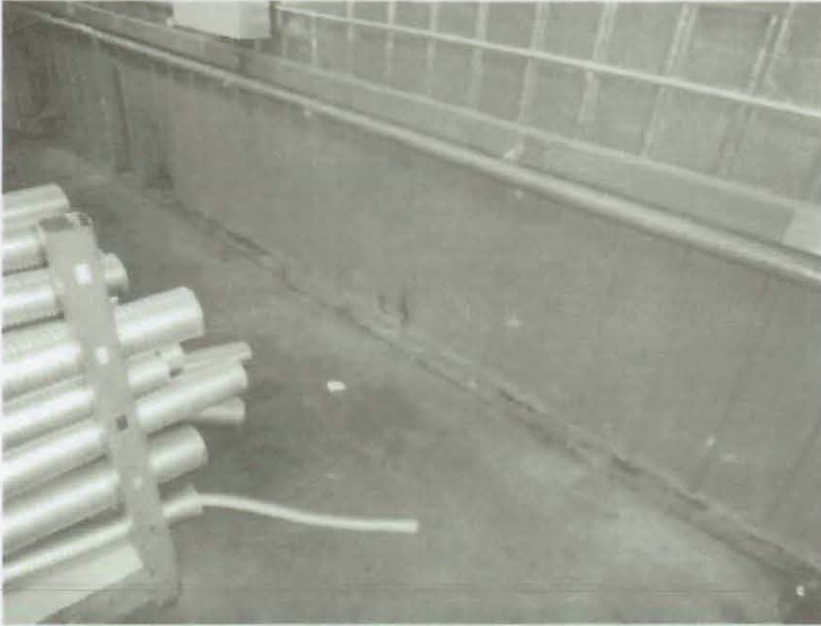


Photo #3 - South side of wall. Burned siding near floor is location of column base plates at columns added after the fire.



Photo #4 - South side of wall. Burned area is location of base plate of column added after fire.

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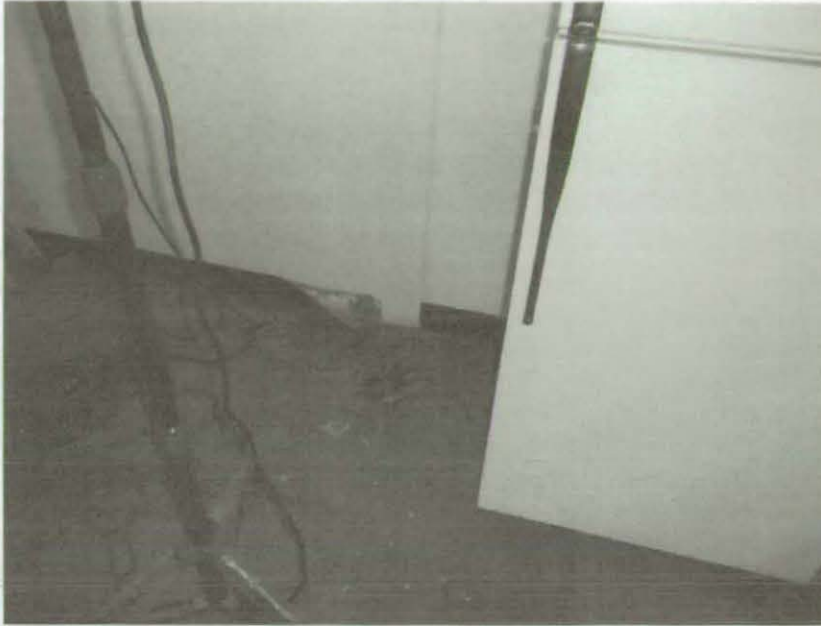


Photo #5 - North side of wall at west added column looking south.



Photo #6 - West of two added columns at column splice.

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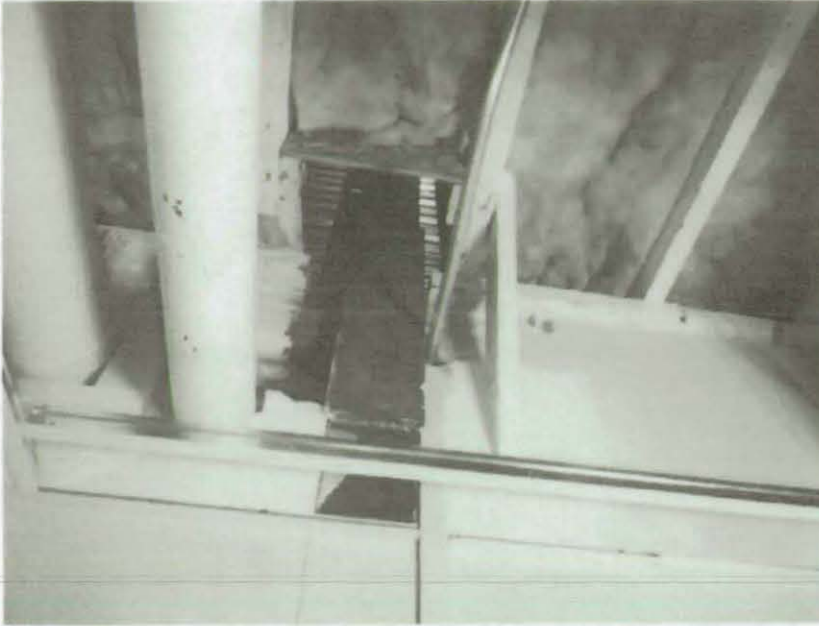


Photo #7 - East of two columns at column splice.



Photo #8 - East added column. Close-up of saw cuts where continuous angle supporting wood second floor joist was cut. Note saw cut into existing steel beam.

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Photo #9 - Close-up of column splice at east added column. W8x18 column is interrupted at tubular steel beam supporting second floor joist on north side of wall. 5/8" x 6" x 24" plate added to flanges each side of column splice but only really welded horizontally at top and bottom of plate. Side welds are quite poor.

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Photo #10 - Side welds between 5/8" x 6" x 24" plate are poor welds.



Photo #11 - Side welds between 5/8" x 6" x 24" plate are poor welds.

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Photo #12 - Cut of angle supporting floor joist on west side of east column.



Photo #13 - Close-up of tubular beam at west side of east column looking SE.
Note saw kerf in wall of tubular beam.

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Photo #14 - Weld of tubular beam to lower half of east column looking SE.

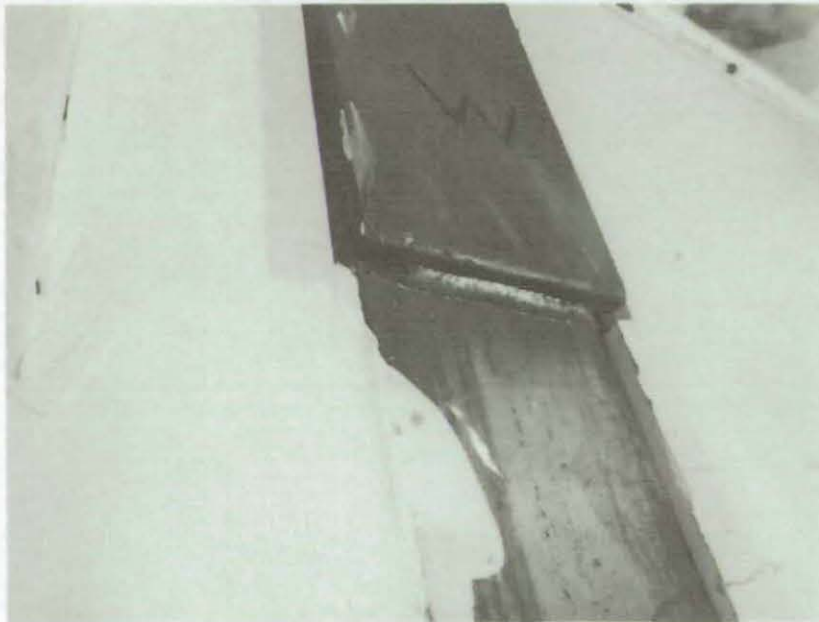


Photo #15 - West added column. Weld of bottom of 5/8" x 6" x 24" plate to flange of added column.

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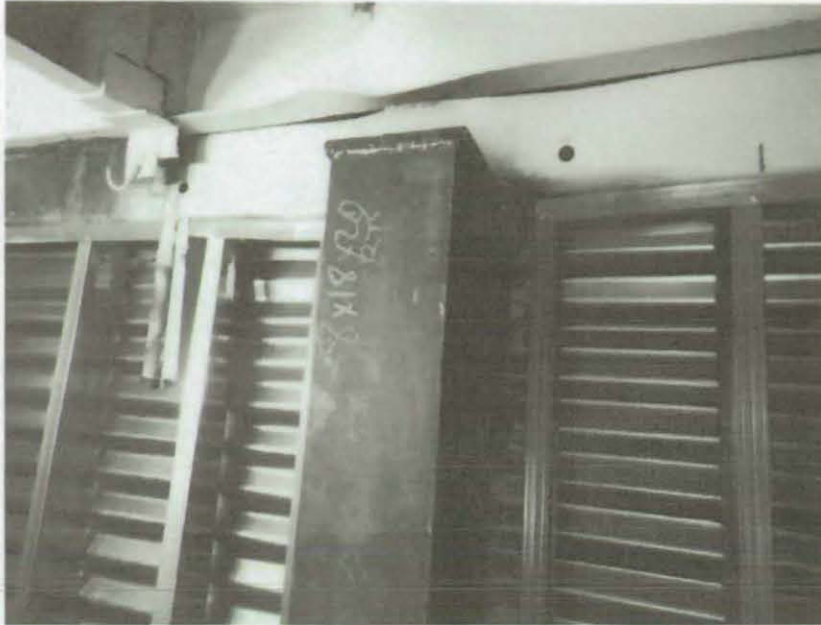


Photo #16 - Top of west column. Note buckled flange of beam beyond.



Photo #17 - Looking down at column splice of west column. Note tubular beam appears to be two tubes or two cold formed channels face to face.

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Photo #18 - Top of west column looking southwest. Column has a bracket on top to support the roof beam as the roof beams are offset from the column.

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Photo #19 - West of two added columns at approximate 1/3 points of roof beam that sagged due to fire. Wood roof deck was replaced. However, the steel support structure was not straightened. It has sagged approximately 3 1/2 inches in six feet.



Photo #20 - Overall view of upper wall looking ESE.

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